FISH PASSAGE

(No.)

Code 396

Natural Resources Conservation Service
Conservation Practice Standard

I. Definition

Modification or removal of barriers that restrict or prevent movement or migration of fish.

II. Purpose

Allow upstream and downstream movement of fish past barriers where feasible or desirable.

III. Conditions Where Practice Applies

This practice applies to all rivers, streams, and outlets of ponds, lakes, or wetland fish spawning areas where barriers impede desired fish passage.

IV. Federal, State, and Local Laws

Users of this standard shall comply with applicable federal, state and local laws, rules, regulations or permit requirements governing fish passage. This standard does not contain the text of federal, state, or local laws.

V. Criteria

General Criteria Applicable to All Purposes

Actions taken to provide fish passage shall seek to avoid adverse effects to endangered, threatened, and candidate species and their habitats, as well as state species of concern, whenever possible. Refer to NRCS General Manual (GM) 190 ECS, Part 410.22 for actions affecting listed species.

Fish passage measures shall be designed so fish will not suffer excessive energy deficits or undue physical stress when swimming past a fish passage structure or site.

Fish passage shall be designed so that fish shall not be excessively delayed during passage at the structure or site unless modification or removal of a barrier could result in undesirable effects to other resources.

Minimum and maximum flows through fish passage structures or sites must be adequate to attract target fish to the structure or site.

Location and overall design of fish passage structures, or fish passage features, shall accommodate watershed conditions such as variations in stream flow and bedload movement.

Location and overall design of fish passage structures or features shall accommodate different aquatic species and age classes to the extent possible.

Location and overall design of fish passage structures or features shall be compatible with local conditions and stream geomorphology.

Materials selected for constructing fish passage structures will be non-toxic to fish and other aquatic life.

Dam removal projects will include a plan to stabilize and manage the downstream movement of accumulated sediment and identify bank stabilization measures needed where needed.

The plan will include reestablishing the upstream channel and reconnecting it to the downstream channel using sound geomorphological principles.

Modifications to dams, including dam removal, to provide fish passage must be in accordance with existing laws and engineering specifications for dams.

VI. Considerations

Consider removal of the barrier or fish passage before installing a fish ladder.

If replacement of an in-channel structure will cause degradation or aggradation of the channel upstream, installation of bed controls appropriate for the geomorphic conditions of the site and fish passage needs should be considered (see NRCS Field Office Technical Guide (FOTG) Section IV Standards 584, Stream Channel Stabilization and 410, Grade Stabilization Structure).

Consider potential negative effects of providing passage for invasive or non-native species that may

hybridize with, compete with, or spread disease to native fish or other aquatic species above a barrier.

Consider the amount of habitat both upstream and downstream of a barrier and the potential for connectivity of important habitats for fish species of concern.

Consider seasonal variations in headwater and tailwater levels and how these may impact passage hydraulics for the life history stages of the fish for which the structure is being designed.

Removal of a fish passage barrier, including a dam, should take into consideration effects on wetlands, flooding potential, existing infrastructure and social impacts.

VII. Plans and Specifications

Specifications for this practice shall be prepared for each site. Plans and specifications shall be in keeping with this practice and shall describe the details adequately to apply the practice to achieve its intended purpose.

At a minimum, the construction plan must include the extent of dam removal, the location for disposal of removed materials, stabilization of accumulated upstream sediment, channel bottom or bank stabilization needed, site erosion control, and site revegetation details.

VIII. Operation and Maintenance

An operation and maintenance plan shall be developed for all applications. The plan shall provide for periodic inspection and prompt repair should fish passage become impaired or inoperable at the structure or site.

IX. References

USDA, Natural Resources Conservation Service, General Manual, Title 190 Ecological Sciences (ECS), Part 410.22, Threatened and Endangered Species of Plants and Animals.

USDA, NRCS Wisconsin Field Office Technical Guide (FOTG), Section IV, Practice Standards and Specifications.